Renewable Energy 1: *How much renewable energy will be operational in Michigan by the end of 2015? What is the total dollar amount of Michigan renewables investment to date and expected when the 10% goal is reached in 2015?*

Executive Summary

1. Given progress to date, it is anticipated that a total of about 1,650 megawatts (MW) of renewable energy capacity will be operational by the end of 2015. Of this amount, approximately 900 MW will be owned, operated, or purchased by DTE Energy and between 500 and 550 MW by Consumers Energy.

2. The total capital investment in renewable energy in Michigan under PA 295 to date is approximately $2 billion; when the 10% renewable energy standard is reached in 2015, this total investment is expected to be roughly $3.5 billion. This represents the direct capital investment in renewable energy and not associated costs such as transmission upgrades.

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1. A total of approximately 1,650 megawatts (MW) of renewable energy capacity will be operational by the end of 2015.

Under PA 295 of 2008, electric providers (investor-owned utilities, municipal utilities, electric cooperatives, and alternative energy suppliers) are required to obtain 10% of their retail sales from qualifying renewable resources by 2015. Only DTE Energy and Consumers Energy have capacity requirements (600 and 500 MW, respectively) by 2015. All other providers can and have used "unbundled" renewable energy credits (RECs) to meet all or part of their RPS requirements. This means they can purchase the renewable attribute without necessarily building or purchasing the associated renewable energy or capacity. They procure these RECs from generation facilities that were in operation prior to PA 295 and deemed "renewable" under the law.[1] As a result, DTE Energy and Consumers Energy are responsible for the majority of new renewable energy investment in the state.

DTE Energy and Consumers Energy have planned for the necessary nameplate capacity, in MW, of renewable generation in order to reach the 10% target, which is measured in annual megawatt-hours of electricity produced from renewable sources.[2] When DTE Energy and Consumers Energy filed plans in early 2009 to comply with this 10% renewable portfolio standard (RPS), the MW capacity required to meet this target was estimated to be approximately 2,200 MW. Due largely to technological advancements in wind turbines (e.g., taller towers, larger blades), and siting wind farms in best wind regimes in the state (mainly the Thumb area), the MW capacity to meet the 10% standard is less than what was anticipated. That is, stronger prevailing winds in the Thumb combined with better technology has led to higher than anticipated capacity factors and resulting electricity production and, thus, fewer turbines (and MW of capacity overall) are needed to meet the 2015 target.

DTE Energy currently estimates that it will have approximately 900 MW of renewable generation operational by the end of 2015 in compliance with the RPS. This includes generation built or under contract with DTE Energy. For comparison, DTE Energy estimated in 2009 that 1,200–1,300 MW would have been needed by 2015.

[1] The RECs are contracted either directly from the generators and/or from brokers/aggregators that have contracted the RECs for resale.

[2] Generation that produces electricity consistently throughout the day and over the course of the year, such as a baseload plant, produces a greater amount of electricity (MWh) for given capacity. The generation's capacity factor represents this ratio, by dividing the total electricity actually produced (or estimated to produce) by the total amount that would have been produced if the plant was operating at full output 24/7, 365 days a year. Capacity factors for wind projects have increased from mid-20% range to over 40% in some areas of Michigan.

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Consumers Energy estimates that it will have between 500 and 550 MW of new renewable generation operational by the end of 2015. Consumers Energy will continue to operate approximately 131 MW of hydro-electric generation and purchase the output from over 200 MW of renewable generation that was operational before the enactment of PA 295.

An additional 200 MW from other providers are expected to be operational in this timeframe. Electric utilities with service areas that cross state boundaries can use renewable energy generation located outside of Michigan and delivered to Michigan through the transmission grid. For example, Indiana Michigan Power Company complies with its RPS requirements in this manner.

2. **The total capital investment in renewable energy in Michigan under PA 295 to date is approximately $2 billion; when the 10% renewable energy standard is reached in 2015, this total investment is expected to be about $3.5 billion. This represents the direct capital investment in renewable energy and not associated costs such as transmission upgrades.**

The total investment to reach the renewable energy standard through 2015 is approximately $3.5 billion ($2 billion owned or purchased by DTE Energy, $1.2 billion owned or purchased by Consumers Energy, and roughly $300-450 million associated with other providers). The breakdown for DTE Energy and Consumers Energy, is shown below.

	Utility-Owned	Under Purchased Power Contract	Total
DTE Energy	$1B ($600 M through 2012)	$1 B ($600 M through 2012)	$2 B
Consumers Energy	$618 M ($240 M through 2012)	$600 M (all through 2012)	$1.218 B

Through December 2012, the total capital investment in renewable energy statewide is estimated at $2 billion. This includes $600 million by DTE Energy and $240 million by Consumers Energy for renewable projects owned directly by the companies. Also included in the total statewide investment through 2012, is an estimated $1.2 billion in investments under purchased power agreements between wind developers and the two utilities. For DTE Energy, additional capital investment for calendar years 2013–2015 is forecasted to be $400 million according to its amended Renewable Energy Plan in MPSC Case No. U-16582. Consumers Energy forecasts an additional $378 million in investment for 2013–2015, as discussed in MPSC Case No. U-16581. The numbers for DTE Energy, Consumers Energy, and others may change as technology and other cost drivers may change.

The technology advancements discussed above, coupled with lower prices for wind contracts, lowered the original expectation of the investment required. These capital investments do not account for all costs associated with renewable energy in the state. As discussed in Renewable Energy Question 5, there are additional costs associated with transmission and integration.